

S-E-C-R-E-T

Attachment

USIB-D-39.7/24

CODIB-D-111/1.8/10

26 January 1968

U N I T E D   S T A T E S   I N T E L L I G E N C E   B O A R D

COMMITTEE ON DOCUMENTATION

MEMORANDUM FOR: United States Intelligence Board

SUBJECT: Final Report of CODIB Task Team VIII - Photo Chip

REFERENCES: (a) USIB-D-39.7/5, 16 March 1964  
(b) USIB-D-39.7/6, 6 May 1964  
(c) CODIB-D-111/1.8/8, 15 November 1967 (Attached)

A. Background.

1. The attached final report of CODIB Task Team VIII, Photo Chip, is the eighth in a series prepared in response to USIB direction in Reference (a). Specifically, it responds to the USIB directive to "Develop a standard photographic chip, exploring the feasibility of adopting the recently developed DoD standard."

2. Since this task team undertook its assignment, the Joint Imagery Interpretation Review Group (JIIRG) was organized and completed its report which resulted in the formation by USIB of the Committee on Imagery Requirements and Exploitation (COMIREX). The JIIRG and the task team were each aware of the work being done by the other. If COMIREX had been in operation at the time the CODIB task team was formed, some of the work undertaken by the task team might properly have been assigned to that committee. Certainly, some of the follow-on work recommended by the task team should involve COMIREX to a considerable extent.

B. Summary of Task Team Findings.

1. Except for the original USIB directive in Reference (a), at no point did the task team find a clearly stated requirement for photo chip\* standardization. However, the team found that the photo chip has a high

\*Although the task team was not asked to include document storage chip systems, per se, in its recommendations, it felt that it could not ignore them because of the propensity for including, and even intermixing, images of photography, documents and maps in operational data bases. Thus, whenever the task team uses the term "data base chip", or "photo chip" without any qualification, it may refer to images of photography, maps, documents, radar returns, or any combination thereof. See Annex G of the task team report for chip definitions.

S-E-C-R-E-T

potential value and that chip standardization, along with its implied automation, is important to the realization of that potential. For that reason it feels that initiation of even partial standardization at this time will provide a substantial advancement toward realization of the full chip potential.

2. There exist a number of different chip system concepts, operational chip systems, chip handling techniques, technologies and hardware which have consumed substantial resources in planning, research and development, and implementation. However, the team did not find sufficient development, experience, or agreement on file and data base concepts, systems or equipment to provide a realistic basis for determining the requirement for a single, all-purpose standard chip or the physical and quality characteristics of such a chip.

3. The team concluded that the initial action toward chip standardization should be to limit the number of chip options for operational data base applications to three sizes: 70mm x 100mm, the 4 x 6 inch (approximate) MICROFICHE and the EAM/Aperture card size with overall dimensions of 3.25 x 7.375 inches. The task team recommends that these three sizes be recognized as de facto elements of the chip standardization program. For the first two of these, the proportionality ratio (ratio of width to length) is approximately 1:1.42; and the team felt that there was considerable merit in standardizing on this proportionality ratio so that conversion from one size or system to another would be facilitated. For this purpose it also recommended that special consideration be given to standardizing the dimensions of the image on the EAM/Aperture card to a ratio of 1:1.42. It further recommended that all future developments in interpretation/exploitation\* or reference\* chips should conform or be compatible (proportional in size) with one of the three sizes recommended above for data base\* applications.

4. The task team identified many problem areas requiring further study and analysis and recognized that there was much work to be done before a practical, long-range solution to chip standardization could be accomplished. (See Annexes D, E, and F of the task team report). It also concluded that this work could not be satisfactorily accomplished by a task team on part-time assignments. It recommended that a small, full-time group be established to pursue the identified problem areas and overall standardization program.

#### C. CODIB Comment.

1. CODIB feels that this task team has performed a very useful service to the intelligence community in its investigation of the photo chip standardization problem and that the team report and its accumulated

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\*See Annex G of the task team report for definitions.

files will continue to serve a very useful purpose in the future as the intelligence community moves further toward standardization in its efforts to achieve compatible systems.

2. CODIB agrees with the task team that it would not be wise at this time to standardize on a single chip size for the entire intelligence community. We believe, in fact, that to do so at this time could be counter-productive because of the multiplicity of uses and sizes of imagery, as can be seen in Annex B to the team's report. However, we see no inherent problems or characteristics which would preclude eventual achievement of a single chip standard.

3. CODIB agrees with the task team that at the present time probably the best action toward eventual standardization that can be taken is to limit the number of chip options to the three sizes specified in paragraph B3 above. However, we feel that these options should be applied primarily to future applications/developments and that systems which are operational now or in an advanced state of development should not be required to convert to one of these sizes except where a cost-benefit analysis shows such conversion to be desirable from the community viewpoint.

4. We believe that there may be some merit in standardizing, insofar as feasible, on the proportionality ratio of chip dimensions so as to facilitate conversion from one chip or image size to another. However, we feel that this is not necessarily the ultimate answer. There are many other factors that must be considered when converting from one chip system to another, particularly in automated systems, e.g., type, location, size, and coding of machine-readable code and human-readable information. Enlarging or reducing from one image size to another is not the same thing as converting from one automated system to another at this point. A single chip standard appears to be the most desirable ultimate goal if we are to achieve the compatibility necessary to permit the development of cooperative, mutually-supporting information storage, retrieval and exchange systems to meet the expanding requirements of the intelligence community. Much more experience and work will be necessary before we can say just what further standardization action should be taken. Furthermore, it will require a desire, willingness and determination on the part of the various agencies involved to cooperate and perhaps to subordinate some of their own self-interests to achieve a solution that will be to the overall benefit of the community.

5. CODIB agrees with the task team that the problems requiring further study before a practical, long-range solution to chip standardization can be achieved are so vast and complex that the work ahead cannot be accomplished by a part-time task team. Task Team VIII, which has been studying some of these problems for over three years, has amply demonstrated the validity of that conclusion. We feel that a small working group,

sponsored jointly by CODIB and COMIREX, should be established in order that full attention may be given to the photo chip problems that lie ahead. In the meantime, we feel that no additional chip applications or R&D efforts should be undertaken in this field that are not related to one of the three chip sizes indicated above unless there is substantial promise of improvement in quality or economy.

6. CODIB recognizes that departmental R&D efforts in the photo chip area may be concerned with problems which are not directly related to intelligence. This will require that the desires of the intelligence community for standardization along the lines set forth in this study be made known to the appropriate R&D organizations in each case.

D. Recommendations.

CODIB recommends that USIB:

1. Note the attached Final Report of CODIB Task Team VIII - Photo Chip.
2. Recognize the following three sizes as de facto photo chip standards for data base applications (as defined in Annex G of the task team report) pending further study and acquisition of experience:
  - a. 70mm x 100mm - DoD ISCIG/TARABS\* proposed standard;
  - b. 4" x 6" (approximate) - Federal MICROFICHE standard;
  - c. EAM/Aperture Card Size - MIL-D-9877/MIL-D-804 standard and Navy MITRAN;

with dimension tolerances and other characteristics for these three sizes as specified on page 6 of the task team report.

3. Direct the formation of a photo-chip working group, sponsored by CODIB and COMIREX, to provide for continuous monitoring of activities within the intelligence community relating to the development and standardization of concepts, procedures, equipment and other factors pertaining to the utilization of photo chips as a major information-bearing medium. As appropriate the photo-chip working group will submit findings and recommendations jointly to CODIB and COMIREX.

4. Request all agencies to keep this CODIB-COMIREX photo chip working group fully informed on all plans for future photo chip applications or R&D; and further request, pending additional recommendations of CODIB/COMIREX, that the agencies not initiate any additional chip

\*Interservice Coordinating and Integrating Group for Tactical Air Reconnaissance and Battlefield Surveillance.

S-E-C-R-E-T

(Revised 28 February 1968)

- 5 -

Attachment  
USIB-D-39.7/24

developments or applications that do not relate to one of the three chip sizes indicated in Recommendation D2, above, without notification of the photo chip working group and indicating their rationale for such a departure.



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Chairman  
Committee on Documentation

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As stated

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# REPORT ON PHOTO CHIP STANDARDIZATION

CODIB-D-111/1.8/8  
NOVEMBER 1967

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Approved For Release 2005/12/14 : CIA-RDP82M00097R001400080002-7

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S-E-C-R-E-T

CODIB-D-111/1.8/8  
15 November 1967

U N I T E D   S T A T E S   I N T E L L I G E N C E   B O A R D  
COMMITTEE ON DOCUMENTATION

TASK TEAM VIII --- Photo Chip

Final Report

GROUP I  
Excluded from automatic  
downgrading and  
declassification.

S-E-C-R-E-T



CODIB-D-111/1.8/8  
15 November 1967

UNITED STATES INTELLIGENCE BOARD

COMMITTEE ON DOCUMENTATION

TASK TEAM VIII - PHOTO CHIP

MEMORANDUM FOR: Chairman, Committee on Documentation

SUBJECT: Transmittal of Task Team VIII Report

REFERENCE: CODIB-D-111/1.8/3\*

1. Attached is the final report of CODIB Task Team VIII, prepared in response to reference. Further discussion supporting the major points in this summary report may be found in the annexes.

2. The judgments expressed reflect the extensive experience and the insights of the team members\*\* many of whom are key managers in the aerospace reconnaissance community. Departmental and organizational thinking, positions and guidance were set aside in the interest of objective findings. Although this report has been informally checked by the USIB components primarily concerned, there has been no formal departmental/agency coordination of the report in any sense.

3. Requirements for photo chips and reduced imagery are a pressing, diverse, and generally underestimated problem in the intelligence community. The magnitude of the problem has varied extremely, depending upon the changing environmental climate and whether the objectives were defined in terms of the ideal, possible, feasible, or practical solution. The Team, in addressing its assigned task, found itself in a predicament much like that of a physician trying to diagnose and prescribe a cure for a group of patients suspected of suffering from the same or related conditions. The Team, like the physician, found the patients treating their local symptoms with home remedies. In some cases these local remedies appeared to be reasonably successful for a given condition, however, no single local remedy appeared capable of curing all the various other local conditions. Standardizing treatment at this point would be tantamount to choosing among the "miracle drugs", inoculation, or other unproven treatment like the current "cures for cancer". There is little prospect or authority for preventing patients from still using their established local treatment of known value and confidence factor. The Team, like the physician, also found it wise to only prescribe standardizing on the fewest selected treatments and techniques that have proven most successful across the spectrum of symptoms (requirements) until the best solution can be determined, tested, and evaluated scientifically under the authority of a carefully selected panel of experts.

4. A paradoxical situation exists, where, in spite of a continual avalanche of reconnaissance material, decision makers at all levels need more

\* Terms of Reference, see Annex 4

\*\* List of team members and their organizations are contained in Annex K.

- 2 -

details upon which they can base decisions of critical importance. The photo chip/imagery problem has been rising rapidly above department considerations to the National level of decision making. There is a pressing need to match the truly significant sums spent to obtain high quality imagery with sufficient facilities for systematic handling, exploitation, storage and retrieval if the essential quality is to be retained and exploited. This situation, recent operational experience in Southeast Asia, and a growing appreciation for the advantages of improved data base concepts have finally created a more receptive condition of readiness for this Team's report. Key, necessary actions require increasing attention to (a) development of national and operational "Data-Base" concepts (including imagery), and (b) distribution of the prodigious amount of reconnaissance imagery collected to the place(s) where it can be properly analyzed, in a near real-time as possible, and then exploited in depth. Attention must certainly be given to the photo chip as the most probable and promising solution. The chip can serve such functions as publication, distribution, analysis, local file storage and retrieval, display, exchange, and imagery/facsimile transmission.

5. After carefully studying alternatives in this changing environment, the Team presents its solution in the form of a standardization plan. This plan is for the most practical and feasible standardization action for the immediate future while providing for timely and systematic progress toward a more nearly ideal solution in pace with evolving concepts, technology, and conditions of readiness. It is essential that the recommendations contained herein be endorsed as soon as possible to provide the most timely and cost effective benefits to the U. S. intelligence community; the worth of the recommendations will probably be proportional to their early endorsement and effective implementation. Unless adequate guidance on the photo chip/imagery problem is provided by CODIB/USIB, development chip decisions will continue to be based on expediency and local, rather than community, requirements. This could lead to unnecessary and costly duplication, delays, and confrontation among chip systems and between chip and associated systems.

6. Recommended actions are in two categories, first, those requiring immediate CODIB decisions and second, those which require consistent coordinated action by one or more appropriate follow-on bodies. The composition of the follow-on body(ies) is critical to the success of the standardization plan. Misassignment or assignment on a collateral duty basis, would continue to compound the problem. Since a summary report, like a five minute brief of a detailed lecture, may appear to oversimplify the problem and encourage pre-emptive decisions, it appears advisable to make the following observations. Although the Joint Imagery and Interpretation Review Group (JIIRG) report generally agreed with this Team's earlier report of May 1966, it did not review or deal directly with the photo chip problem.\* The Photo chip problem prevades the data base, research and development, systems support, storage and retrieval, and ADP areas; therefore, it is not recommended that it be assigned solely to any existing committee. Experience of this Team and those that have served in Vietnam emphasizes the urgent requirement for more intimate and continuing participation in systems design by the ultimate users, down to the lowest level of field/tactical employment. Coordination/integration is required horizontally at both the national and operational/field levels and vertically between the

\* See Approved For Release 2005/12/14 : CIA-RDP82M00097R001400080002-7

3 -

two. Appropriate follow-on action will require sufficiently broad authority and responsibility to continue chip system development for the benefit of the entire intelligence community.

7. The Team members and I stand ready to assist, where possible, those concerned with the recommended follow-on actions. Team studies and documentation have been retained to expedite and support in-depth analysis.

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Chairman

S-E-C-R-E-T

## UNITED STATES INTELLIGENCE BOARD

## COMMITTEE ON DOCUMENTATION

## Task Team VIII - Photo Chip Standardization

Table of Contents

	<u>Page</u>
I. Objective and Approach.....	1
A. Objective.....	1
B. Approach.....	1
C. Task Team Agreements.....	1
D. Survey and Analysis.....	1
E. Membership.....	2
II. Findings and Conclusions.....	2
A. General.....	2
B. Photo Chip Standardization.....	3
C. Standardization Development Program.....	4
D. Identification of Selected Problem Areas.....	5
III. Assembled Illustrations*	
A. Three Categories of Chips (Exploitation/ Interpretation, Data Base, Reference).	L-8276 ... Annex A
B. DoD (ISCIG-TARABS) Recommended Photo Chip Format (70mm X 100mm).	L-8277 ... Annex C
C. Approach to Standardization (Decision Chart - Problems and Alternatives).	L-9684 ... Annexes A&D
D. Data Base Chip Interface/Innerface (Family- to-Family; Chip-to-Chip; and Image-to- Image Exchange/Transfer Relationships).	L-8273.... Annex A
E. Data Base Chip and Roll Film Interface (Variable Image Transfer; Direct Enlarge- ment, and Reduction).	L-8275 ... Annex A
F. Chip/Image Proportionality and Data Exchange (Case for a Standard Proportionality Ratio).	L-9342 ... Annex D
G. Chips in Proportion (Examples of various chip sizes having fixed dimensional proportionality).	L-9344 ... Annex D

\* Annex B also contains an extensive sampling of various chips investigated by the Task Team. It is being published separately and in limited distribution. Copies will be available on loan through the CODIB Support Staff.

S-E-C-R-E-T

- ii -

Table of Contents cont'd.

Page

H. Sample specifications of MICROFICHE size chip which could be adapted for Data Base and Exploitation applications.	L-9343 ... Annex D
I. Versatility of Chips in Combination (Advantages of Combining Chips of Various sizes and Qualities).	L-8274 ... Annex E

IV. Recommendations.....6

A. Chip Standardization Action.....6
B. Standardization Development Program.....6
C. Identification of Selected Problem Areas.....6

Annexes

A. The Chip Problem and Elements of Consideration
B. Chip Examples, A Major Sampling (Published Separately in Limited Quantity)
C. Characteristics of the DoD Recommended 70mm X 100mm Data Base Photo Chip
D. Considerations Affecting Chip Compatibility and Chip Systems Concepts
E. Selected Considerations and Contingencies Affecting the Future of the Photo Chip
F. List of Chip Standardization Follow-On Actions
G. Definition of Terms or Phrases Used with New or Particularized Meaning
H. Terms of Reference for Task Team VIII
I. Briefings Given to Members of Task Team VIII
J. Photo Chip Survey Questionnaire
K. Task Team VIII Members and Participants
L. List of Selected Reference Material (Including Detailed Task Team Working Papers and Draft Reports).

S-E-C-R-E-T

S-E-C-R-E-T

- iii -

#### PHOTO CHIP DEFINITION

For purposes of the photo chip inquiry and this report, the following definition was established by the Task Team:

Photo Chip - The general class of transparencies cut or produced to convenient size, bearing an image of a physical or cultural feature of the earth's surface, of maps, charts, text; or of associated intelligence information or background materials. The chip may also contain supplemental coded, indexed, locational, or textual data related to the image content. There are three general categories of chips considered in this report:

1. Data Base Chip
2. Exploitation/Interpretation Chip
3. Reference Chip

See Annex G for detailed definitions

S-E-C-R-E-T

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Approved For Release 2005/12/14 : CIA-RDP82M00097R001400080002-7

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Approved For Release 2005/12/14 : CIA-RDP82M00097R001400080002-7